

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-64. (Cancelled).

Claim 65. (New) A projection lens system for enlarging and projecting an image from an image generating source onto a screen, said lens system having a plurality of lens elements therein which lens elements are arranged from a first end nearest said screen to a second end nearest said image generating source, as follows:

a first lens for compensating an aberration, said first lens having an optical axis, and having a positive refraction power in a central portion thereof, said central portion being formed into a convex shape;

a second lens having a biconvex shape, and having strongest positive refraction power among the plurality of lens elements therein; and

a third lens connected to a cooling liquid for cooling said image generating source, said third lens having a negative refraction power and being formed into a meniscus shape, with a concave surface thereof directed toward said screen; wherein,

a cross-section of said third lens is defined by a function $Z(r)$;

second derivative values of said function $Z(r)$ increase within a range of values of " r " from zero up to a predetermined point, and decreases within a range from said predetermined point to a maximum value of " r ";

" Z " is the position of a point on a surface of said lens in a direction parallel to said optical axis thereof; and

" r " is a radial distance of said point from said optical axis.

Claim 66. (New) A projection lens system as defined in Claim 65, wherein said predetermined point is situated at a radial distance which is approximately 0.7 of the maximum value of r .

Claim 67. (New) A projection lens system as defined in Claim 65, further comprising an aspheric lens for compensating a spherical aberration and a chromatic aberration, said aspheric lens being disposed between said second lens and said third lens, and having a shape which is one of concave on a side nearest said screen in a central portion thereof, and biconcave.

Claim 68. (New) A projection lens system as defined in Claim 65, further comprising, between said second lens and said third lens:

a first aspheric lens for compensating a spherical aberration and a chromatic aberration, said first aspheric lens having a shape that is one of concave on a side nearest said screen in a central portion thereof, and being biconcave; and

a second aspheric lens for compensating a high degree of coma aberration, said second aspheric lens being concave toward said image generating source in a peripheral portion thereof.

Claim 69. (New) A projection display apparatus, comprising:

an image generating source;

a screen; and

a projection lens system, having a plurality of lens units, for enlarging and projecting an image from said image generating source onto said screen, wherein said plurality of lens units comprises, from an end of said lens system nearest said screen to an end of said lens system nearest said image generating source:

a first lens for compensating an aberration, said first lens having an optical axis, and having a positive refraction power in a central portion thereof, said central portion being formed into a convex shape;

a second lens having a biconvex shape, and having strongest positive refraction power among the plurality of lens elements therein; and

a third lens connected to a cooling liquid for cooling said image generating source, said third lens having a negative refraction power and being formed into a meniscus shape, with a concave surface thereof directed toward said screen; wherein,

a cross-section of said third lens is defined by a function $Z(r)$;

second derivative values of said function $Z(r)$ increase within a range of values of " r " from zero up to a predetermined point, and decreases within a range from said predetermined point to a maximum value of " r ";

" Z " is the position of a point on a surface of said lens in a direction parallel to said optical axis thereof; and

" r " is a radial distance of said point from said optical axis.

Claim 70. (New) A projection display apparatus as defined in Claim 69, wherein said predetermined point is situated at a radial distance which is approximately 0.7 of the maximum value of r .

Claim 71. (New) A projection display apparatus as defined in Claim 69, further comprising an aspheric lens for compensating a spherical aberration and a chromatic aberration, said aspheric lens being disposed between said second lens and said third lens, and having a shape which is one of concave on a side nearest said screen in a central portion thereof, and biconcave.

Claim 72. (New) A projection display apparatus as defined in Claim 69, further comprising, between said second lens and said third lens:

a first aspheric lens for compensating a spherical aberration and a chromatic aberration, said first aspheric lens having a shape that is one of concave on a side nearest said screen in a central portion thereof, and being biconcave; and

a second aspheric lens for compensating a high degree of coma aberration, said second aspheric lens being concave toward said image generating source in a peripheral portion thereof.